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UNITED STATES DEPARTMENT OF AGRICULTURE  
Rural Electrification Administration  
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Telephone Engineering Newsletter

Newsletters are intended to provide a means for answering questions that arise in the field. They are not intended to be instructions nor to replace in any respect the presently approved channels for establishing requirements and procedures. Suggestions for subjects will be gladly received.

Polyethylene Covered Line Wire

A trial is planned in North Dakota using one bare and one polyethylene covered wire on REA borrowers' rural lines. The object is to offset the effects of span hits and permit greater sags which will minimize wire vibration and abrasion at ties. In this trial, 109 galvanized steel 135 grade wire will have a cover of 23 mil polyethylene as used on the core wire of the six pair rural distribution cable. It will have the insulation removed at insulators so it can be tied to the glass in the usual way. It is necessary to have both wires bare at the insulators to equalize leakage and prevent noise which would occur otherwise. A similar trial of .080 30% Copperweld will also be made. The covered wire will be the battery side of the line. Comparisons will be made with bare wires strung on the same arms in accordance with the increased tensions and other requirements of TED No. 21 dated May 4, 1954. The cost estimates are reasonable considering the expected benefits from the use of the insulated wire. If these trials appear successful, further use of this type of wire will probably be made.

Self-Supporting Cable

This is to repeat the request made in Newsletter No. 3 for trial locations of a mile or more at two locations in each of the three loading areas. Any one having possible locations on REA projects should send in requirements. The manufacturer will supply messenger and lashing wire free if trouble develops in the self-supporting cable.

Two Channel Microwave Radio

This is to repeat the request for a location on an REA project where two circuits for rural party service or two trunks between dial offices using E & M signaling are needed. A requirement is that the two terminals of the microwave channels be in line of sight which clears all intervening obstacles by 50 feet. Anyone having a suitable location on an REA project should send in a request for trial with information indicating that the line of sight requirement can be met. The installation is desired by fall, so a system in operation by then is needed.

Point Transposition Brackets, 12 inch Type

A trial of 12 inch point type transposition bracket is being made on REA borrowers' telephone systems in Minnesota and North Dakota. This trail is



a substitute for tandem transpositions which have not proved entirely satisfactory in that area due to wire vibration causing wire and glass abrasion. Pin spacing is 12 inches at intermediate non-transposed points.

#### Point Transposition Brackets, 4 and 8 inch Types

Point transposition brackets of the 4 inch and 8 inch type are under consideration in addition to the 12 inch type mentioned above.

#### Splints for Solid Copper Line Wire Ties

Due to the small mileage of solid copper line wire used by REA telephone system borrowers it is not generally known that the same method of tie for this wire is to be used as for Copperweld wire, that is, with splints. The "List of Materials Acceptable for Use on Telephone Systems of REA Borrowers" lists the approved splints and tie wires for such use.

#### Cable Guards

It is realized that cable guards have not been used at all places that should have them in REA borrowers' telephone systems because they are not required under the definition of the Aerial Cable Assembly Unit in the Telephone System Construction Contract. This matter is receiving attention and the situation will be cleared up in the revised specification.

#### Effectiveness of Tube Type Polyethylene Vibration Dampers

Newsletter No. 3 mentioned the reduction in line wire vibration where tube type polyethylene vibration dampers are spiraled onto line wire. Tests made with and without the dampers on the wires show that undamped wire had an amplitude of vibration of 5600 micro-inches in a ten mile per hour wind. This was reduced to 20 micro-inches when a polyethylene tubular damper similar to one of the kind recommended in TED 21 dated May 4, 1954 (filed with TE & CM Section 616) was placed on the line wire. This reduction by the use of dampers which is nearly 300 to 1 should be effective in minimizing wire wear in windy areas.